XX January 2020

Mr. Nicholas Campanella
President
Medrecycler-RI, Inc.
215 Gordons Corner Road
Manalapan, NJ 07726

Dear Mr. Campanella:

The Rhode Island Department of Environmental Management (DEM), Office of Air Resources (OAR) has reviewed and approved your minor source permit application for the construction, installation and operation of a medical waste processing facility to be located at 1600 Division Road, West Warwick, RI 02893.

Enclosed is a minor source permit issued pursuant to our review of your application (Approval Nos. XXXX-XXXX).

Issuance of this air permit does not grant exclusive approval to Medrecycler-RI, Incorporated (MRI) to commence operation. MRI is required to obtain a license from the DEM Office of Waste Management (OWM) for a medical waste treatment facility. Please be advised that until the OWM issues such a license, MRI shall not accept any medical waste nor begin construction or installation of any equipment.

Medrecycler-RI Incorporated may be subject to the requirements of 40 CFR 60, Subpart A (General Provisions) and Subpart JJJJ (Standards of Performance for Stationary Spark Ignition Internal Combustion Engines). Please contact the U.S. Environmental Protection Agency - Region 1 for a compliance determination. Compliance with all applicable provisions therein is required.

This permit may be reopened after the results of stack testing are evaluated if it is found that any emission limitation(s) will need to be modified or incorporated into the permit. If there are any questions concerning this permit, please contact me at 401-222-2808, extension 7415 or at stephen.stamand@dem.ri.gov.

Sincerely,

Stephen G. St. Amand
Senior Air Quality Specialist
Office of Air Resources

cc: Town of West Warwick Building Official
Mary B. Shekarchi – Shekarchi Law Offices

STATE OF RHODE ISLAND AND PROVIDENCE PLANTATIONS
DEPARTMENT OF ENVIRONMENTAL MANAGEMENT
OFFICE OF AIR RESOURCES

MINOR SOURCE PERMIT

MEDRECYCLER-RI, INC.

APPROVAL Nos. XXXX-XXXX

Pursuant to the provisions of Air Pollution Control Permits, 250-RICR-120-05-9, this minor source permit is issued to:

Medrecycler-RI, Inc.

For the following:

Installation of two (2) Technotherm, Inc. pyrolysis systems which will use medical waste as a feed stock (Approval Nos. XXXX & XXXX). The dual pyrolysis system will be equipped with an air pollution control system consisting of a regenerative thermal oxidizer (Approval No. XXXX), a backup flare (Approval No. XXXX), and a gas clean-up system. The backup flare shall only be used during periods of start-up or in the event of an unplanned shut down.

Located at: *1600 Division Road, West Warwick, Rhode Island*

This permit shall be effective from the date of its issuance and shall remain in effect until revoked by or surrendered to the Department. This permit does not relieve *Medrecycler-RI, Inc.* **from compliance with applicable state and federal air pollution control rules and regulations. The design, construction and operation of this equipment shall be subject to the attached permit conditions and emission limitations.**

Laurie Grandchamp, P.E., Chief
Office of Air Resources

Date of issuance

STATE OF RHODE ISLAND AND PROVIDENCE PLANTATIONS
DEPARTMENT OF ENVIRONMENTAL MANAGEMENT
OFFICE OF AIR RESOURCES

Permit Conditions and Emission Limitations

MEDRECYCLER-RI, INC.

APPROVAL Nos. XXXX-XXXX

A. General Conditions

1. The owner/operator shall not begin operation as a regulated medical waste treatment facility unless the owner/operator holds a valid licence for a medical waste treatment facility issued by the RI Department of Environmental Management, Office of Waste Management.

2. This permit may require reissuance if the licence for a medical waste treatment facility issued by the OWM stipulates terms or conditions that differ from this permit's terms or conditions.

B. Emission Limitations

1. The total quantity of emissions discharged to the atmosphere from all operations conducted at the entire facility shall not exceed any of the following quantities in any consecutive 12-month period:

   a. Nitrogen Oxides (NO_x) shall not exceed 48,000 pounds,
   b. Carbon Monoxide (CO) shall not exceed 198,000 pounds,
   c. Sulfur Dioxide (SO_2) shall not exceed 78,000 pounds,
   d. Particulate Matter < 10 μ (PM_{10}) shall not exceed 28,000 pounds, and
   e. Particulate Matter < 2.5 μ ($PM_{2.5}$) shall not exceed 18,000 pounds.

2. Volatile Organic Compound (VOC)

   a. The total quantity of VOC emissions discharged to the atmosphere from all operations conducted at the entire facility shall not exceed 48,000 pounds in any consecutive 12-month period.

   b. All emissions generated from the pyrolysis system shall be captured, contained and routed to a control system designed and operated to reduce VOC by 99%.

3. Hazardous Air Pollutant (HAP)

   The total quantity of HAP emissions discharged to the atmosphere from all operations, from the entire facility, shall not exceed 1,500 pounds of any one HAP or 4,000 pounds of any combination of HAPs per calendar month based upon a 12

-month rolling average. HAP shall mean an air pollutant which has been listed pursuant to Section 112(b) of the Clean Air Act Amendments of 1990.

4. Listed Toxic Air Contaminants

The total quantity of emissions discharged to the atmosphere from the entire facility of any listed toxic air contaminant shall not exceed the minimum quantity for that contaminant as specified in 250-RICR-120-05-9.17, Appendix A in any consecutive 12-month period. Emissions from activities exempted from the provisions of Air Pollution Control Regulation-Air Toxics 250-RICR-120-05-22.5(B) are not included in this limitation.

5. Odors

Any air contaminant or combination of air contaminants discharged to the atmosphere from the thermal oxidizer and flare shall not create an objectionable odor beyond the property line of this facility. Odor evaluations shall be conducted according to the provisions of 250-RICR-120-05-17.

6. Opacity – Thermal Oxidizer

Visible emissions from the thermal oxidizer shall not exceed 10% opacity (six-minute average). Where the presence of uncombined water is the only reason for failure to meet the requirements of this condition, such failure shall not be a violation of this permit.

7. Opacity – Flare

The flare shall be operated with no visible emissions.

C. Operating Requirements

1. The maximum throughput of medical waste processed in each pyrolysis unit shall not exceed 35 tons per day.

2. The facility shall only accept and/or process regulated medical waste as defined and in accordance with RIDEM, Medical Waste Regulation, 250-RICR-140-15-1.

3. The facility shall be operated in compliance with RI Department of Environmental Management's, Medical Waste Regulation, 250-RICR-140-15-1.

4. The facility shall not process any of the following waste streams in either pyrolysis unit:

   a. Radioactive waste;
   b. Etiologic agents;
   c. RCRA empty Chemotherapeutic/Cytotoxic waste;
   d. Isolation wastes; or
   e. Prions or OD infected waste or by-products.

5. The owner/operator shall take all necessary precautions to restrict the spreading of biological and infectious diseases by ensuring that the equipment used to process the medical waste prior to the pyrolysis units is a closed system and is maintained under negative pressure at all times.

6. The owner/operator shall not operate either pyrolysis units unless the entire air pollution control train is operational.

7. The air pollution control train shall consist of a gas clean-up system, a condensing scrubber in series with an acid gas scrubber, a dryer, a cyclone, and a thermal oxidizer. The gas clean-up system shall include one tar condenser, one oil condenser, and one aerosol condenser. Two (2) parallel gas cleanup systems and two (2) parallel scrubber trains shall be installed; one operational system and one standby.

8. All syngas generated by each pyrolysis unit shall be captured, contained and routed to the gas clean-up system followed by the scrubbers prior to being combusted in the internal combustion engine(s).

9. Emissions generated from the internal combustion engine(s) shall be captured, contained and routed to the dryer followed by the cyclone prior to discharge to the thermal oxidizer.

10. Emissions generated from the vitrifier shall be captured, contained and routed to the pyrolysis units.

11. There shall be no bypassing of the gas clean-up system and scrubbers during times when syngas is being discharged to engine(s) or the flare.

12. The operating temperature of the thermal oxidizer or flare shall be maintained at or above 1500°F whenever syngas is being discharged to the oxidizer and/or flare, or at a lower temperature that has been demonstrated in the most recent compliance test to achieve the required 99% destruction efficiency.

13. The secondary chamber volume of the thermal oxidizer shall be of sufficient capacity to provide a minimum residence time for combustion gases of one second at 1500°F.

14. Syngas flow to the thermal oxidizer and flare shall be continuously measured and recorded.

15. The flare shall be equipped with a flame failure alarm that automatically shuts off the blower which delivers syngas to the flare.

16. The thermal oxidizer and the flare shall be the only devices allowed to discharge to the atmosphere.

17. The thermal oxidizer and the flare shall be operated at all times when syngas is being vented to each device.

18. The flare shall be operated only during periods of start-up and/or in the event of an unplanned shut down.

19. The thermal oxidizer and flare shall be operated and maintained according to its design specifications whenever syngas is being vented to each device.

20. All equipment shall be operated and maintained in accordance with the manufacturer's recommended procedures.

21. The owner/operator shall ensure that the installation, operation, and maintenance of the ductwork, pipes, connections, conduits, vessels, etc., that are used to convey emissions are properly designed, constructed and maintained to prevent leaks.

D. Monitoring Requirements

1. Thermal Oxidizer

   a. The operating temperature of the thermal oxidizer shall be continuously monitored and recorded. The equipment to continuously monitor the operating temperature of the oxidizer must have an accuracy of +/-1 percent of the temperature being monitored in degrees Celsius or +/-1 degree Celsius, whichever is greater.

   b. The equipment to continuously monitor the operating temperature of the thermal oxidizer must be calibrated and maintained according to the manufacturer's specifications. The calibration of the chart recorder, data logger or temperature indicator must be verified once per year or the chart recorder, data logger or temperature indicator must be replaced.

   c. The owner/operator shall install, calibrate and maintain a gas flow rate measuring device that shall measure and record the flow of syngas to the thermal oxidizer continuously when the thermal oxidizer is in operation.

2. Flare

   a. The flare shall be equipped with an interlock system that ensures ignition of the pilot flame before syngas is discharged to the device.

   b. The presence of a flare flame shall be monitored using a thermocouple or any other equivalent device to detect the presence of a flame.

   c. The flare shall be equipped with a flame failure detection device and syngas supply valve shut-off system to isolate the flare from the syngas

supply line which will sense a flame-out of the flare and will shut down the flow of syngas to the flare.

d. The owner/operator shall install, calibrate, operate, and maintain a temperature monitoring device equipped with a continuous recorder and having a minimum accuracy of ±1 percent of the temperature being measured expressed in degrees Celsius or ±0.5 degrees Celsius, whichever is greater.

e. The owner/operator shall install, calibrate, operate, and maintain a gas flowrate measuring device that shall record and measure the flowrate of syngas to the flare whenever the syngas is being discharged to the flare. The gas flow rate measuring device shall record the flowrate of syngas to the flare at least every fifteen minutes.

f. The hours of operation of the flare when syngas is being discharged to it, shall be continuously monitored and recorded.

3. The owner/operator shall perform an annual leak inspection of all equipment in VOC and/or HAP service. For this inspection, detection methods incorporating sight, sound, and smell are acceptable. Each piece of equipment that is in VOC and or HAP service shall be inspected when in service.

4. The owner/operator shall locate radiation monitors at the receiving entrance.

E. Testing Requirements

1. Within 180 days of startup of the thermal oxidizer, emissions testing shall be conducted to measure emission of nitrogen oxides, sulfur dioxide, carbon monoxide, particulate matter, fluorides, sulfuric acid, hydrogen sulfide, acetaldehyde, benzene, 1,3-butadiene, chlorine, formaldehyde, hydrogen chloride, hydrogen fluoride, hydrogen cyanide, naphthalene, methyl chloride, toluene, vinyl chloride, xylene, antimony, arsenic, beryllium, cadmium, chromium III, chromium VI, cobalt, copper, lead, manganese, mercury, molybdenum, nickel, selenium, vanadium, zinc, Polychlorinated Dibenzo Dioxins (PCDDs), Polychlorinated Dibenzo Furans (PCDFs), Polychlorinated Biphenyls (PCBs), Polycyclic Organic Matter (POMs).

   Emissions testing shall be performed for both the incoming stream and stack emissions to determine compliance with the destruction efficiency of Condition B.2.b and to quantify emission rates. Results of this determination shall be included in the stack test report.

2. An emissions testing protocol shall be submitted to the Office of Air Resources for review at least 60 days prior to the performance of any emissions test. The owner/operator shall provide the Office of Air Resources at least 60 days prior notice of any emissions test.

3. All test procedures used for emissions testing shall be conducted in accordance with Appendix A of 40 CFR 60 or another method approved by the Office of Air Resources and U.S. Environmental Protection Agency (EPA) prior to the performance of any emissions tests.

4. The owner/operator shall install any and all test ports or platforms necessary to conduct the required emissions testing, provide safe access to any platforms and provide the necessary utilities for sampling and testing equipment.

5. All testing shall be conducted under operating conditions deemed acceptable and representative for the purpose of assessing compliance with the applicable emission limitations or air quality standards.

6. A final report of the results of emission testing shall be submitted to the Office of Air Resources no later than 60 days following completion of the testing.

7. All emission testing must be observed by the Office of Air Resources or its authorized representatives to be considered acceptable, unless the Office of Air Resources provides authorization to the owner/operator to conduct the testing without an observer present.

F. Recordkeeping and Reporting Requirements

1. The owner/operator shall collect, record and maintain records all of the following information each day for all material accepted and processed at the facility:

   a. The date the material was accepted;

   b. The type of material;

   c. The quantity of material in pounds;

   d. The total quantity of medical waste in pounds processed through the pyrolysis units and the date the material was processed.

2. The owner/operator shall notify the Office of Air Resources in writing within 15 days of determining that the total quantity of medical waste processed in any pyrolysis unit exceeds 35 tons per day.

3. The owner/operator shall, on a monthly basis, no later than 15 days after the first of the month, determine the total quantity of NO_x, SO_2, CO, PM_{10}, $PM_{2.5}$ and VOCs discharged to the atmosphere from the entire facility. Monthly and 12-month rolling totals shall be calculated. The 12-month rolling total shall be used for comparison with emission limitations. The owner/operator shall keep records of this determination and provide such records to the Office of Air Resources upon request.

4. The owner/operator shall notify the Office of Air Resources in writing within 15 days of determining that the total quantity of emissions discharged to the

atmosphere from all operations conducted at the entire facility exceed any of the following quantities in any consecutive 12-month period:

a. Nitrogen Oxides (NO_x) 48,000 pounds,

b. Carbon Monoxide (CO) 198,000 pounds,

c. Sulfur Dioxide (SO_2) 78,000 pounds,

d. Particulate Matter < 10 μ (PM_{10}) 28,000 pounds,

e. Particulate Matter < 2.5 μ ($PM_{2.5}$) 18,000 pounds, and

f. Volatile Organic Compound (VOC) 48,000 pounds.

5. The owner/operator shall, on a monthly basis, no later than 15 days after the first of the month, determine the total quantity of HAP emissions discharged to the atmosphere from the entire facility. Monthly and 12-month rolling totals shall be calculated. The 12-month rolling total shall be used for comparison with emission limitations. The owner/operator shall keep records of this determination and provide such records to the Office of Air Resources upon request.

6. The owner/operator shall notify the Office of Air Resources, in writing, within 15 days of determining that the total quantity of HAP emissions discharged to the atmosphere from all operations for the entire facility exceeds 1,500 pounds of any one HAP or 4,000 pounds of any combination of HAPs per calendar month based upon any consecutive 12-month period.

7. The owner/operator shall, on a monthly basis, no later than 15 days after the first of the month, determine the total quantity of each listed toxic air contaminant in 250-RICR-120-05-9.17, Appendix A discharged to the atmosphere from the entire facility. Monthly and 12-month rolling totals shall be calculated. The 12-month rolling total shall be used for comparison with emission limitations. The owner/operator shall keep records of this determination and provide such records to the Office of Air Resources upon request.

8. The owner/operator shall notify the Office of Air Resources in writing, within 15 days of determining that the total emissions discharged to the atmosphere from the entire facility, of any listed toxic air contaminant exceeds the minimum quantity for that contaminant as specified in 250-RICR-120-05-9.17, Appendix A.

9. The owner/operator shall collect, record and maintain all of the following information each month for the thermal oxidizer:

   a. A log of operating time for the thermal oxidizer;

   b. A maintenance log for the thermal oxidizer and the monitoring equipment detailing all routine and non-routine maintenance performed including dates and duration of any outages;

c. The operating temperature of the thermal oxidizer;

d. The syngas flowrate and total syngas combusted in the thermal oxidizer during the month;

e. All measurements, performance evaluations, calibration checks and maintenance or adjustments for each continuous monitor.

10. The owner/operator shall collect, record and maintain all of the following information each month for the backup flare:

a. A log of operating time for the flare, including the date, the time when syngas began being discharged to the flare and the time when the syngas stopped being discharged to the flare;

b. The reason for using the flare (startup, shutdown or malfunction);

c. A maintenance log for the flare and the monitoring equipment detailing all routine and non-routine maintenance performed including dates and duration of any outages;

d. The syngas flowrate and total syngas combusted in flare during the month;

e. All measurements, performance evaluations, calibration checks and maintenance or adjustments for each continuous monitor.

11. The owner/operator shall submit a quarterly report to the Office of Air Resources for the first 24 months after startup of the system containing the following for the flare:

a. The operating time for the flare, including the date, the time when syngas began being discharged to the flare and the time when the syngas stopped being discharged to the flare for each month;

b. The reason for using the flare (startup, shutdown or malfunction);

c. The syngas flowrate and total syngas combusted in flare during each month.

12. For any leak detected pursuant to Condition D.3 of this permit, the owner/operator shall record the following information:

a. The name of the leaking equipment;

b. The date and time the leak is detected;

c. The action taken to repair the leak;

d. The date and time the leak is repaired.

13. For any leak inspection conducted pursuant to Condition D.3 of this permit during which no leaks are detected, the owner/operator shall record the following information:

    a. A record that the inspection was performed;

    b. The date and time of the inspection;

    c. A statement that no leaks were detected.

14. Any breakdown or malfunction of an air pollution control system while controlling emissions from the pyrolysis system or from the production of syngas that results in the emission of uncontrolled syngas shall be reported to the Office of Air Resources within one (1) hour after the occurrence. A written report of any breakdown or malfunction shall be submitted within five (5) business days of the breakdown or malfunction. A copy of each report shall be kept at the facility. The following information shall be provided in each report:

    a. The date the breakdown or malfunction occurred

    b. The suspected reason for the malfunction

    c. The corrective action taken

    d. The time needed to make repairs

15. The owner/operator shall notify the Office of Air Resources, in writing, of the date of actual start-up of the equipment covered by this permit, no later than 15 days after such date.

16. The owner/operator shall notify the Office of Air Resources of any anticipated noncompliance with the terms of this permit or any other applicable air pollution control rules and regulations.

17. The owner/operator shall notify the Office of Air Resources in writing of any planned physical or operational change to any equipment covered under this approval that would:

    a. Change the representation of the facility in the application.

    b. Alter the applicability of any state of federal air pollution rules or regulations.

    c. Result in the violation of any terms or conditions of this permit.

    d. Qualify as a modification under 250-RICR-120-05-9.

Such notification shall include:

- Information describing the nature of the change.
- Information describing the effect of the change on the emission of any air contaminant.
- The scheduled completion date of the planned change.

Any such change shall be consistent with the appropriate regulation and have the prior approval of the Director.

18. The owner/operator shall notify the Office of Air Resources, in writing, of any noncompliance with the terms of this permit within 30 calendar days of becoming aware of such occurrence and supply the Director with the following information:

    a. The name and location of the facility;

    b. The subject source(s) that caused the noncompliance with the permit term;

    c. The time and date of first observation of the incident of noncompliance;

    d. The cause and expected duration of the incident of noncompliance;

    e. The estimated rate of emissions (expressed in lbs/hr or lbs/day) during the incident and the operating data and calculations used in estimating the emission rate;

    f. The proposed corrective actions and schedule to correct the conditions causing the incidence of noncompliance.

19. All records required as a condition of this permit shall be maintained for a minimum of five years after the date of each record and shall be made available to representatives of the Office of Air Resources upon request.

G. Other Permit Conditions

1. To the extent consistent with the requirements of this permit and applicable federal and state laws, the equipment shall be designed, constructed and operated in accordance with the representation of the facility in the permit application.

2. Employees of the Office of Air Resources and its authorized representatives shall be allowed to enter the facility at all times for the purpose of inspecting any air pollution source, investigating any condition it believes may be causing air pollution or examining any records required to be maintained by the Office of Air Resources.

3. At all times, including periods of startup, shutdown and malfunction, the owner/operator shall, to the extent practicable, maintain and operate the facility in a manner consistent with good air pollution control practice for minimizing emissions. The general duty to minimize emissions does not require you to make any further efforts to reduce emissions if levels required by this permit have been achieved. Determination of whether acceptable operating and maintenance procedures are being used will be based on information available to the Office of Air Resources which may include, but is not limited to, monitoring results, opacity observations, review of operating and maintenance procedures and inspection of the source.

4. The Office of Air Resources may reopen and revise this permit if it determines that:

   a. a material mistake was made in establishing the operating restrictions; or,

   b. inaccurate emission factors were used in establishing the operating restrictions; or,

   c. emission factors have changed as a result of stack testing or emissions monitoring; or,

   d. revisions that are necessary due to additional applicable requirements pursuant to state or federal law or from any regulatory agency.

H. Malfunctions

1. The owner/operator may seek to establish that a malfunction of the air pollution control system that would result in noncompliance with any of the terms of this permit or any other applicable air pollution control rules and regulations was due to unavoidable increases in emissions attributable to the malfunction. To do so, the owner/operator must demonstrate to the Office of Air Resources that:

   a. The malfunction was not attributable to improperly designed air pollution control equipment, lack of preventative maintenance, careless or improper operation, or operator error;

   b. The malfunction was not part of a recurring pattern indicative of inadequate design, operation, or maintenance;

   c. Repairs necessary to bring the air pollution control system back to operating at its design control efficiency were performed in an expeditious fashion. Off-shift labor and overtime should be utilized, to the extent practicable, to ensure that such repairs were completed as expeditiously as practicable. Any parts or material needed should be shipped overnight where possible or practical.

   d. All possible steps were taken to minimize emissions during the period of time that the repairs were performed.

e. Emissions during the period of time that the repairs were performed will not:

(1) Cause an increase in the ground level ambient concentration at or beyond the property line in excess of that allowed by 250-RICR-120-05-22 and any Calculated Acceptable Ambient Levels; and

(2) Cause or contribute to air pollution in violation of any applicable state or national ambient air quality standard.

f. The reasons that it would be impossible or impractical to cease the source operation during said period.

g. The owner/operator's actions in response to the excess emissions were documented by properly signed, contemporaneous operating logs or other relevant evidence.

This demonstration must be provided to the Office of Air Resources, in writing, within two working days of the time when the malfunction occurred and contain a description of the malfunction, any steps taken to minimize emissions and corrective actions taken.

The owner/operator shall have the burden of proof in seeking to establish that noncompliance was due to unavoidable increases in emissions attributable to the malfunction.